



Public Understanding of Chemistry: Chemistry and its social-political-economic context continue to change.

Chemistry and chemistry-based technology that impact our lives make for the complexity and controversy of life and set the stage for thinking about public understanding of chemistry. The Public Understanding of Chemistry section will try to address chemistry in real life context with original contributions (articles/position papers/policy briefs) and/or published articles and columns in reputable sources (used with permission).

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SCIENCE & TECHNOLOGY COMMUNICATION: NANOTECHNOLOGY – A POSITIVE ISSUE

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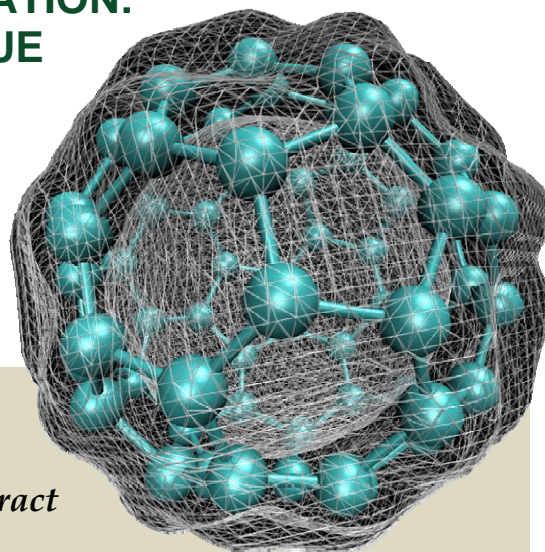
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Science, Technology and the Public

Science Daily, in *Nanoparticles Against Aging*, examines the development of an intelligent nanodevice consisting of mesoporous nanoparticles with a galactooligosaccharide surface that selectively opens in degenerative phase or senescent cells [1]. Ramón Máñez effectively communicated this scientific breakthrough to the public, reporting that the discovery demonstrates how selected chemicals can be released in some cells and not in others. The use of an intelligent nanodevice to deliver chemicals enables new discoveries and reveals some of the unique capabilities of this technology including treatment delivery systems. Scientists continue to make great strides in applied nanotechnology (e.g., carbon nanotubes [2]) research with breakthroughs in medical delivery, materials technology, manufacturing developments and processing.

Scientists may easily grasp the positive attributes of this nanodevice discovery; however, the public, in general, might not be able to decrypt the scientific jargon or the full potential of its use, often leaving them confounded and/or apprehensive about the ramifications of such a discovery.

Public references to nanotechnology elicit a mixed response. For instance, some environmentalist groups condemn nanotechnology as “nanocontamination.” In 2010, the National



Abstract

Improving science and technology communication between the public and the scientific community is critical. Scientific success and development rest upon the premise of an informed public. Rapid development in fields like nanotechnology, for example, necessitates that the scientific and higher education community reconsider more effective ways to both communicate with and to educate the public sector to facilitate a more positive response and enable new discoveries.

Key Words

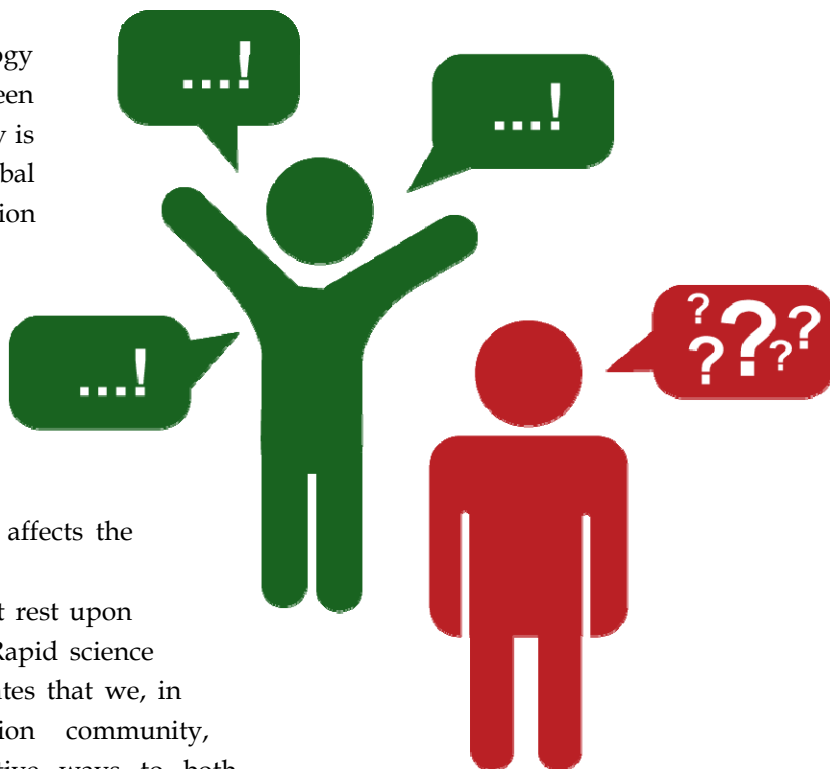
Communication, nanotechnology, informed public, science and technology, education

Science Foundation conducted a public assessment of the benefits and harms of nanotechnology study and found that only 37% of adults polled believed that the benefits of nanotechnology will outweigh the harmful results, 43% answered that they simply did not know and 11% responded that the harmful results outweigh the benefits.

Communication is Key

Improving science and technology education and communication between the public and the scientific community is critical in a rapidly changing global environment. Effective communication may create new research opportunities, facilitate broader education initiatives, and foster a more encouraging view of new discoveries. By doing so, one might contextualize nanotechnology research in an easy to understand way that actually affects the connotation.

Scientific success and development rest upon the premise of an informed public. Rapid science and technology development necessitates that we, in the scientific and higher education community, reconsider the best and most effective ways to both communicate with and to educate the public sector on science and technology.



References

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2. Kumar, D. D., Thomas, P. V., & Mahfuz, H. *Journal of Materials Education*, 2010, 32(3-4), 153-162.
3. *Public assessment of benefits and harms of nanotechnology, by respondent characteristic*: 2010, University of Chicago, National Opinion Research Center, General Social Survey, 2010, Available at: <http://www.nsf.gov/statistics/seind12/append/c7/at07-34.pdf>

IMAGE ACKNOWLEDGMENT: The image is a Bucky ball with isosurface of ground state electron density, calculated with DFT and the CPMD code. It was created by Isaac Tamblyn (<http://myweb.dal.ca/itamblyn/site/Home.html>). It is used under the GNU Free Documentation License.